

### **Listing of Claims:**

This listing of claims reflects all claim amendments and replaces all prior versions, and listings, of claims in the application. Material to be inserted is in **bold and underline**, and material to be deleted is in ~~strikeout~~ or (if the deletion is of five or fewer consecutive characters or would be difficult to see) in double brackets [[ ]]. In brief, claims 34, 37, and 41 have been amended, and claim 35 has been canceled, without prejudice.

#### Claims 1-33 (Canceled)

34. (Currently amended) A method for conducting a multiplexed experiment, comprising:

providing a first class of particles in a first vessel, each particle in the first class having a first optically detectable code, and a second class of particles in a second vessel, each particle in the second class having a second optically detectable code,

attaching a first type of analyte to particles in the first vessel, and attaching a second type of analyte to particles in the second vessel,

forming a mixture of particles from the first and second vessels, the mixture having substantially equal numbers of particles from each vessel,

dispersing a portion of the mixture to an examination site on a surface, the particles of the first and second classes being distributed to random positions across the examination site,

reacting the portion of the mixture with a test substance,

acquiring at least one image of particles at the examination site on the surface,  
and

using code information from the at least one image to interpret results of the experiment,

**wherein each of the particles has at least one flat viewing surface and a shape that self-oriens the viewing surface to face a viewing direction.**

35. (Canceled)

36. (Previously presented) The method of claim 34, wherein each particle has at least one transparent portion.

37. (Currently amended) The method of claim 34, wherein each **particle** ~~carrier~~ comprises a combination of fused fibers of various colors, the colors and relative positions of the fibers indicating the code.

38. (Previously presented) The method of claim 34, wherein the coupling step includes attaching biological cells to particles in each vessel, the code on each particle identifying a characteristic of a cell coupled to the particle.

39. (Previously presented) The method of claim 34, wherein analytes are coupled to particles covalently.

40. (Previously presented) The method of claim 34, wherein the reacting step is performed before the dispersing step.

41. (Currently amended) A method for conducting a multiplexed experiment, comprising:

providing a first class of particles in a first vessel, each particle in the first class having a first optically detectable code, and a second class of particles in a second vessel, each particle in the second class having a second optically detectable code,

coupling a first type of analyte to particles in the first vessel, and attaching a second type of analyte to particles in the second vessel,

forming a mixture of particles from the first and second vessels, the mixture having substantially equal numbers of particles from each vessel,

dispersing a portion of the mixture to an examination site on a surface, the particles of the first and second classes being distributed to random positions across the examination site,

directing an imaging device toward the examination site, the imaging device being configured to acquire images of particles at the examination site,

acquiring a set of images of particles at the examination site, each image corresponding to a different spectral band, and

operating a computer program to identify particles of the same class by using the images to develop a mask for the particles of the same class, and detecting one or more reporting modalities within the mask.

42. (Previously presented) The method of claim 41, wherein each of the particles has at least one flat viewing surface and a shape that self-oriens the viewing surface to face a viewing direction substantially perpendicular to the surface.

43. (Previously presented) The method of claim 41, wherein each particle has at least one transparent portion.

44. (Previously presented) The method of claim 41, wherein each carrier comprises a combination of fused fibers of various colors, the colors and relative positions of the fibers indicating the code.

45. (Previously presented) The method of claim 41, wherein the coupling step includes attaching biological cells to particles in each vessel, the code on each particle identifying a characteristic of a cell coupled to the particle.

46. (Previously presented) The method of claim 41, wherein analytes are coupled to particles covalently.

47. (Previously presented) The method of claim 41, wherein the reacting step is performed before the dispersing step.